

## N O T I C E

THIS DOCUMENT HAS BEEN REPRODUCED FROM  
MICROFICHE. ALTHOUGH IT IS RECOGNIZED THAT  
CERTAIN PORTIONS ARE ILLEGIBLE, IT IS BEING RELEASED  
IN THE INTEREST OF MAKING AVAILABLE AS MUCH  
INFORMATION AS POSSIBLE

# AgRISTARS

81-10070  
SR-LO-00485 CR-16 0567  
JSC-16814

SEP 29 1980

"Made available under NASA sponsorship  
in the interest of early and wide dis-  
semination of Earth Resources Survey  
Program information and without liability  
for any use made thereof."

A Joint Program for  
Agriculture and  
Resources Inventory  
Surveys Through  
Aerospace  
Remote Sensing

August 1980

## Supporting Research

### NORMAL CROP CALENDARS

### VOLUME 2: THE SPRING WHEAT STATES OF MINNESOTA, MONTANA, NORTH DAKOTA, AND SOUTH DAKOTA

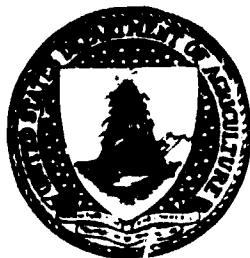
William L. West, III

(E81-10070) NORMAL CROP CALENDARS. VOLUME  
2: THE SPRING WHEAT STATES OF MINNESOTA,  
MONTANA, NORTH DAKOTA, AND SOUTH DAKOTA  
(Lockheed Engineering and Management) 24 p  
HC A02/MF A01

N81-13426

Unclass  
CSCL 02C G3/43 00070

Lockheed Engineering and Management Services Company, Inc.  
1830 NASA Road 1, Houston, Texas 77058



**NASA**



Lyndon B. Johnson Space Center  
Houston, Texas 77058

1. Report No. SR-LO-00485; JSC-16814		2. Government Accession No.		3. Recipient's Catalog No.	
4. Title and Subtitle Normal Crop Calendars Volume 2: The Spring Wheat States of Minnesota, Montana, North Dakota and South Dakota				5. Report Date August 1980	
				6. Performing Organization Code LEMSCO-15034	
7. Author(s) William L. West, III				8. Performing Organization Report No.	
9. Performing Organization Name and Address Lockheed Engineering and Management Services Company, Inc. 1830 NASA Road 1, Houston, Texas 77058				10. Work Unit No. 63-2307-3332	
				11. Contract or Grant No. NAS 9-15800	
12. Sponsoring Agency Name and Address National Aeronautics and Space Administration Lyndon B. Johnson Space Center Houston, Texas				13. Type of Report and Period Covered Technical Report	
				14. Sponsoring Agency Code	
15. Supplementary Notes <i>J. D. Erickson Tech Monitor</i>					
16. Abstract  This document consists of the state crop calendars for the principal spring-wheat producing states within the United States. These crop calendars are an update of those produced for the Large Area Crop Inventory Experiment (LACIE) multilabeling task during 1978 and are compiled for the Foreign Commodity Production Forecasting (FCPF) project of the Agriculture and Resources Inventory Surveys Through Aerospace Remote Sensing (AgRISTARS) Program.					
17. Key Words (Suggested by Author(s))  state crop calendars data sources			18. Distribution Statement		
19. Security Classif. (of this report) Unclassified		20. Security Classif. (of this page) Unclassified		21. No. of Pages 23	
				22. Price*	

\*For sale by the National Technical Information Service, Springfield, Virginia 22161

SR-LO-00485  
JSC-16814

NORMAL CROP CALENDARS  
VOLUME 2: THE SPRING WHEAT STATES OF MINNESOTA,  
MONTANA, NORTH DAKOTA, AND SOUTH DAKOTA


Job Order 73-332

This report describes activities of the  
Supportive Research project of the AgRISTARS program.

PREPARED BY

William L. West, III

APPROVED BY

  
J. E. Wainwright, Manager  
Development and Evaluation Department

LOCKHEED ENGINEERING AND MANAGEMENT SERVICES COMPANY, INC.

Under Contract NAS 9-15800

For

Earth Observations Division  
Space and Life Sciences Directorate  
NATIONAL AERONAUTICS AND SPACE ADMINISTRATION  
LYNDON B. JOHNSON SPACE CENTER  
HOUSTON, TEXAS

August 1980

LEMSCO-15034

## CONTENTS

Section	Page
1. INTRODUCTION.....	1
2. REFERENCES.....	19

REPRODUCTION OF THIS DOCUMENT IS PROHIBITED

# TABLE

Table		Page
1	LEGEND AND NOTES FOR THE CROP CALENDAR.....	2

# FIGURES

Figure		Page
1	The crop calendar for Minnesota.....	3
2	The crop calendar for Montana.....	7
3	The crop calendar for North Dakota.....	10
4	The crop calendar for South Dakota.....	15

OFFERING PAGE BLANK NOT FILMED

OFFERING PAGE BLANK NOT FILMED

## ACRONYMS

AgRISTARS	Agriculture Resources Inventory Surveys Through Remote Sensing
CRD	Crop reporting district
FCPF	Foreign Commodity Production Forecasting
MAP	Most active period
LACIE	Large Area Crop Inventory Experiment
NOAA	National Oceanic and Atmospheric Administration
USDA	U.S. Department of Agriculture
USDA/ESCS	USDA/Economics, Statistics, and Cooperatives Services

PRECEDING PAGE BLANK NOT FILMED

## 1. INTRODUCTION



This second volume of normal crop calendars for the Foreign Commodity Production Forecasting (FPCF) project of the Agriculture and Resources Inventory Surveys Through Aerospace Remote Sensing (AgRISTARS) program contains the state crop calendars for the principal spring wheat producing states within the United States. The crop calendars are an update of the calendars originally produced for the Large Area Crop Inventory Experiment (LACIE) multilabeling task during 1978. These calendars are the standard products as described in the Normal Crop Calendars for the Foreign Commodity Production Forecasting Project, Volume 1, Assembly and Application of Historical Crop Data to a Standard Product. Figures 1 through 4 are the state crop calendars for Minnesota, Montana, North Dakota, and South Dakota, respectively. Table 1 is the legend and notes for the crop calendars.

No salient problems were encountered during compilation. Data sources, weekly weather and crop bulletins or reports, and other publications offered information which varied from state to state as to emphasis, completeness, and method of reporting. Thus, a need for caution during extraction of data was imperative to ensure accuracy. The information was extracted from references 1 through 7.



TABLE 1.- LEGEND AND NOTES FOR THE CROP CALENDAR

TIME LINES

-  = Time line based on insufficient data to establish a reliable MAP and 50 percent point of stage
-  = Heavy line indicates the MAP (5/95 criterion). Thin line shows the earliest and latest the stage has occurred. The ▼ shows average 50 percent of stage.

CROP STAGE CODES

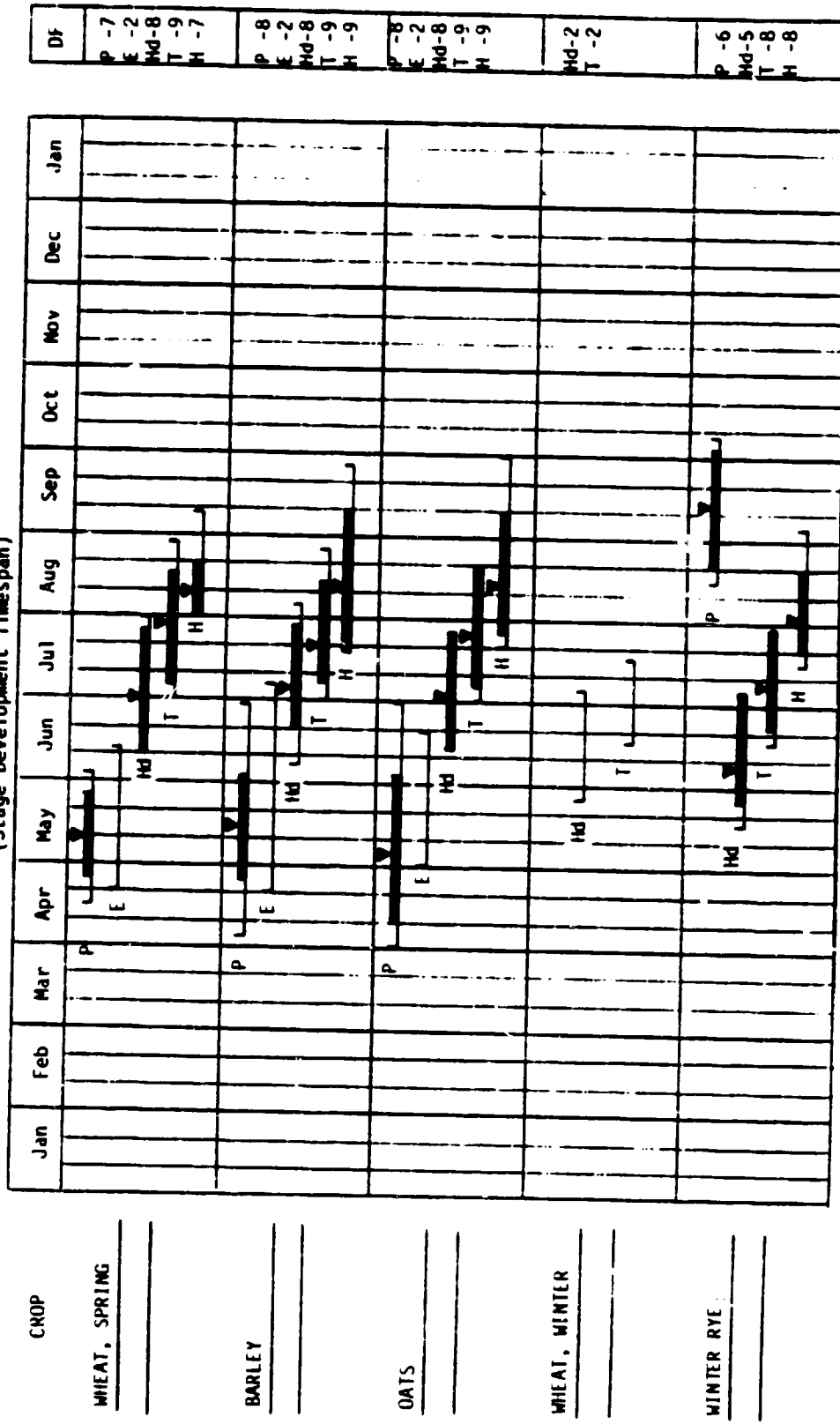
B - Bloom	M - Mature (ripe)
Bo - Boot	P - Plant (includes transplanted crops)
C - Cut (hay crops only)	Po - Pod
D - Dent	S - Shed (natural or man-made)
E - Emergence	T - Turning
H - Harvest (includes synonymous terms - dug, picked, etc.)	Ta - Tassel
Ho - Head	Ti - Tillering
J - Joint	VC - Vines cut
	Ob - Open bolls

NOTES

1. E/TI - Stages given in this format indicate the available information was given in a combined form.
2. It is possible to have multiple harvests from a single crop. When and where this occurs will be indicated by a numeral in front of the code to indicate which harvest.
3. Where a crop is area specific, either as deviating significantly from the normal or is limited to a specific crop reporting district (CRD), an area indicator will be shown directly beneath the crop name. This area indicator denotes that the time line applies to that area only; it does not mean that the crop is not grown elsewhere.

CROP CALENDAR

(Stage Development Timespan)



Sources: Field and Seed Crops Usual Planting and Harvest Dates. Agriculture Handbook No. 283, USDA/ESCS; also published and unpublished USDA/ESCS statistics and state agriculture statistics.

Figure 1.- The crop calendar for Minnesota.

Date 5 DECEMBER 1979

Page 2 of 4

Area UNITED STATES  
PO1/Sub MINNESOTA

CROP CALENDAR

(Stage Development Timespan)

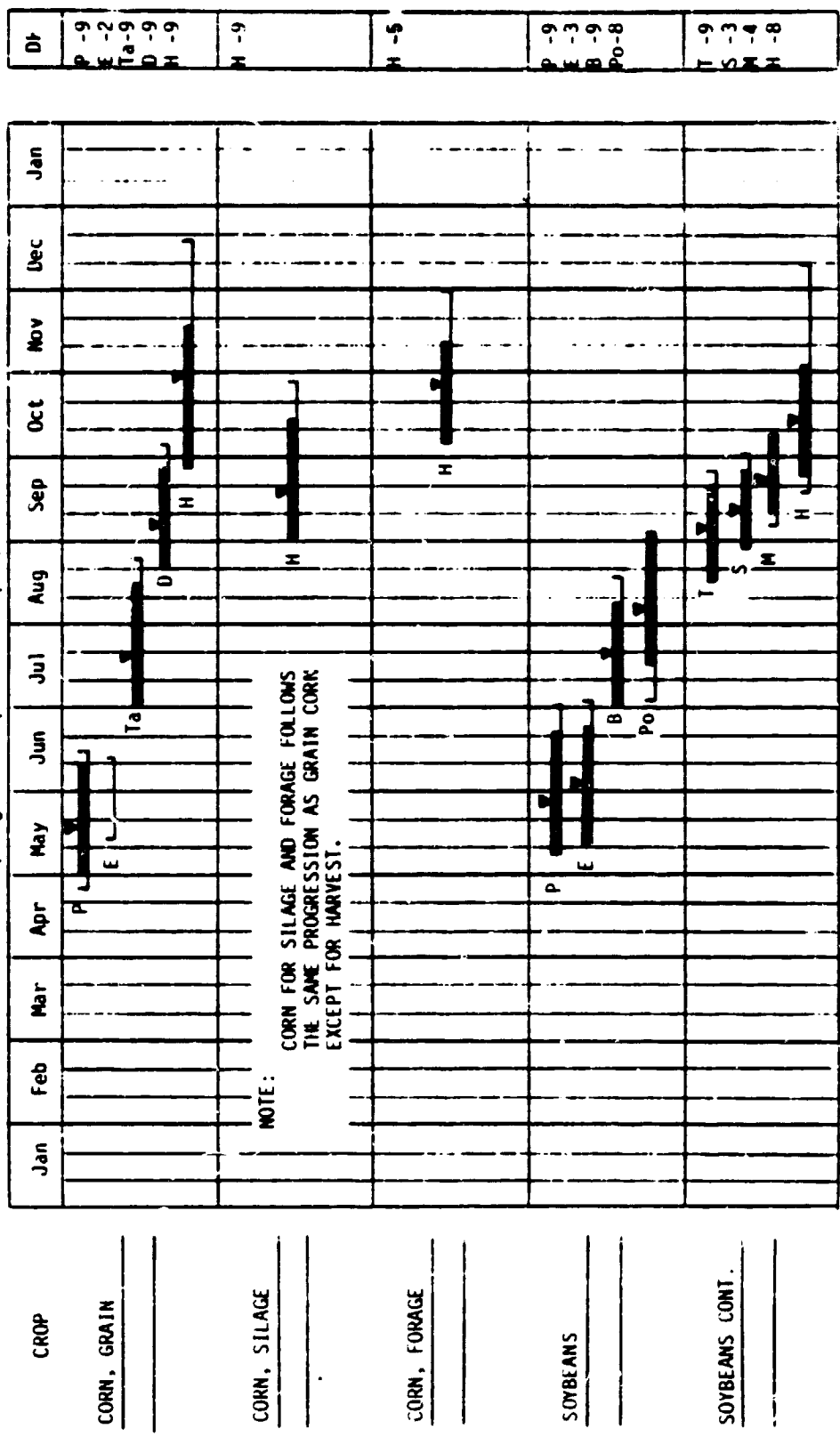


Figure 1.- Continued.

Date 5 DECEMBER 1979

Page 3 of 4

CROP CALENDAR

(Stage Development Timespan)

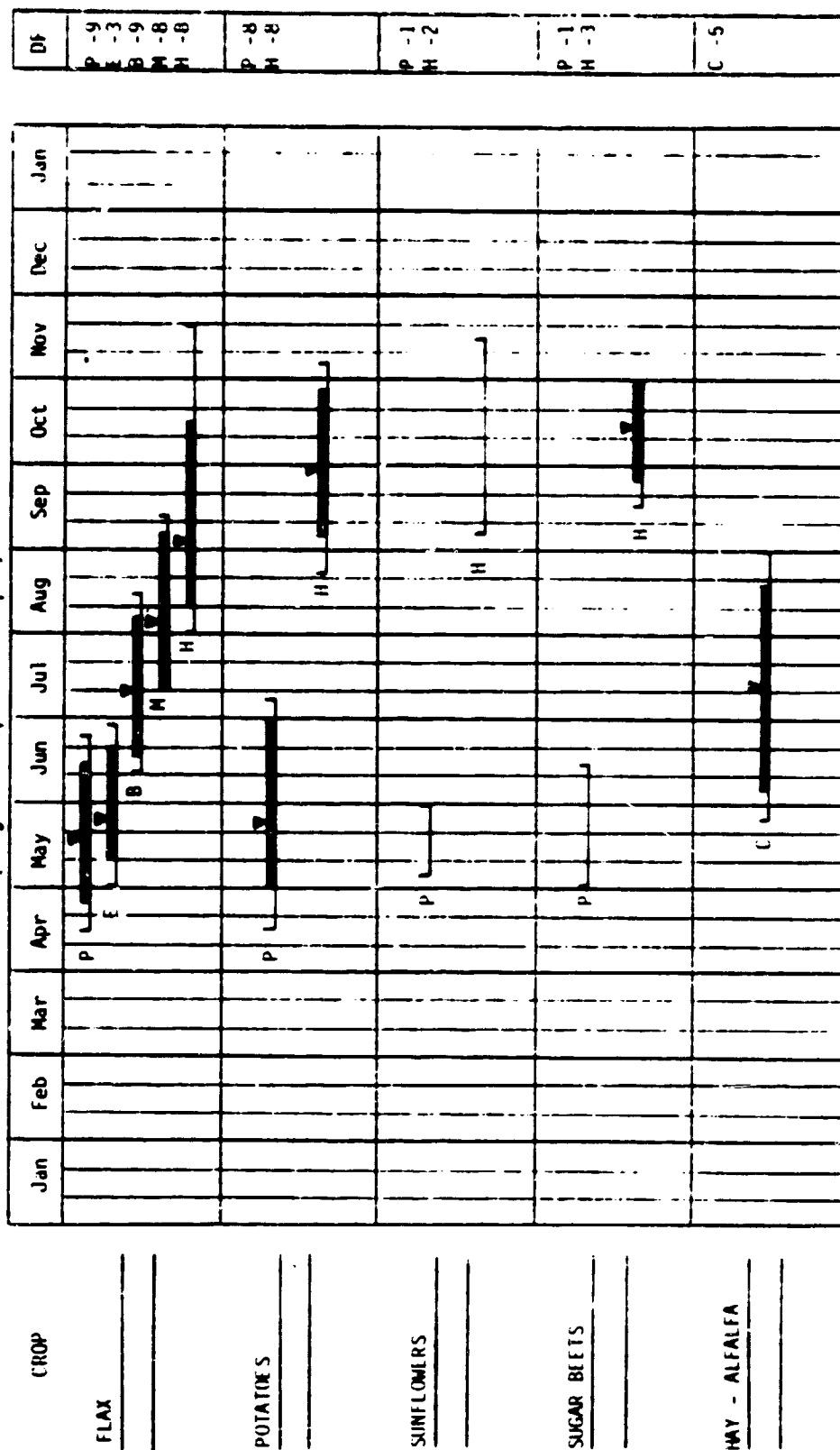


Figure 1.- Continued.

Area UNITED STATES Date 5 DECEMBER 1979

Pol/Sub MINNESOTA Page 4 of 4

CROP CALENDAR

(State Development Timespan)

CROP	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	DF
HAY - CLO TIM						C								C -5
HAY - WILD							C							C -5

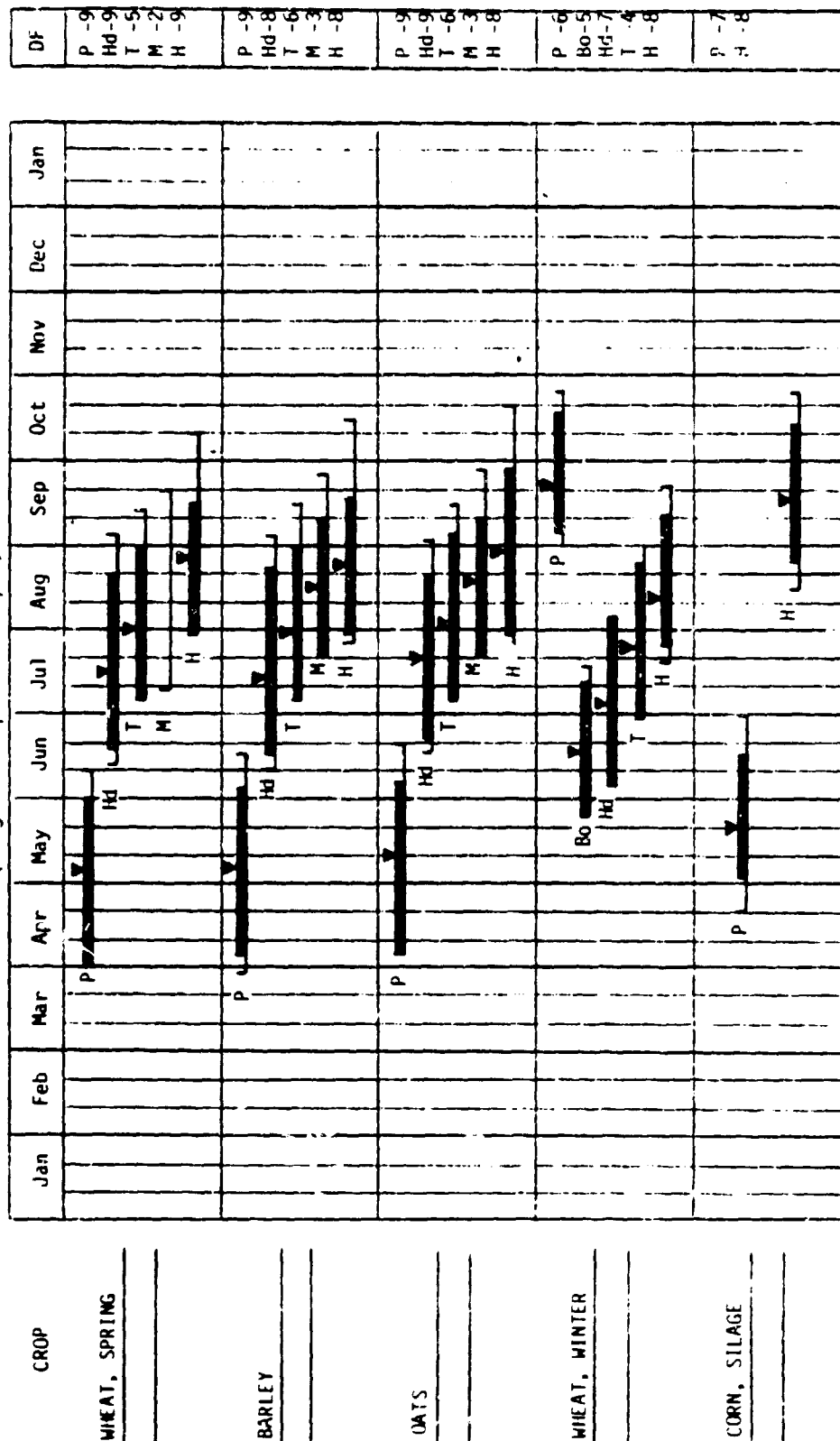
Figure 1.- Concluded.

Area UNITED STATES

Pol/Sub MONTANA

CROP CALENDAR

(Stage Development Timespan)



Sources: Field and Seed Crops Usual Planting and Harvest Dates. Agriculture Handbook No. 283, USDA/ESCS; also published and unpublished USDA/ESCS statistics and state agriculture statistics.

Figure 2.- The crop calendar for Montana.

Date 6 DECEMBER 1979

Page 2 of 3

Area UNITED STATES  
Po1/Sub MONTANA

CROP CALENDAR

(Stage Development Timespan)

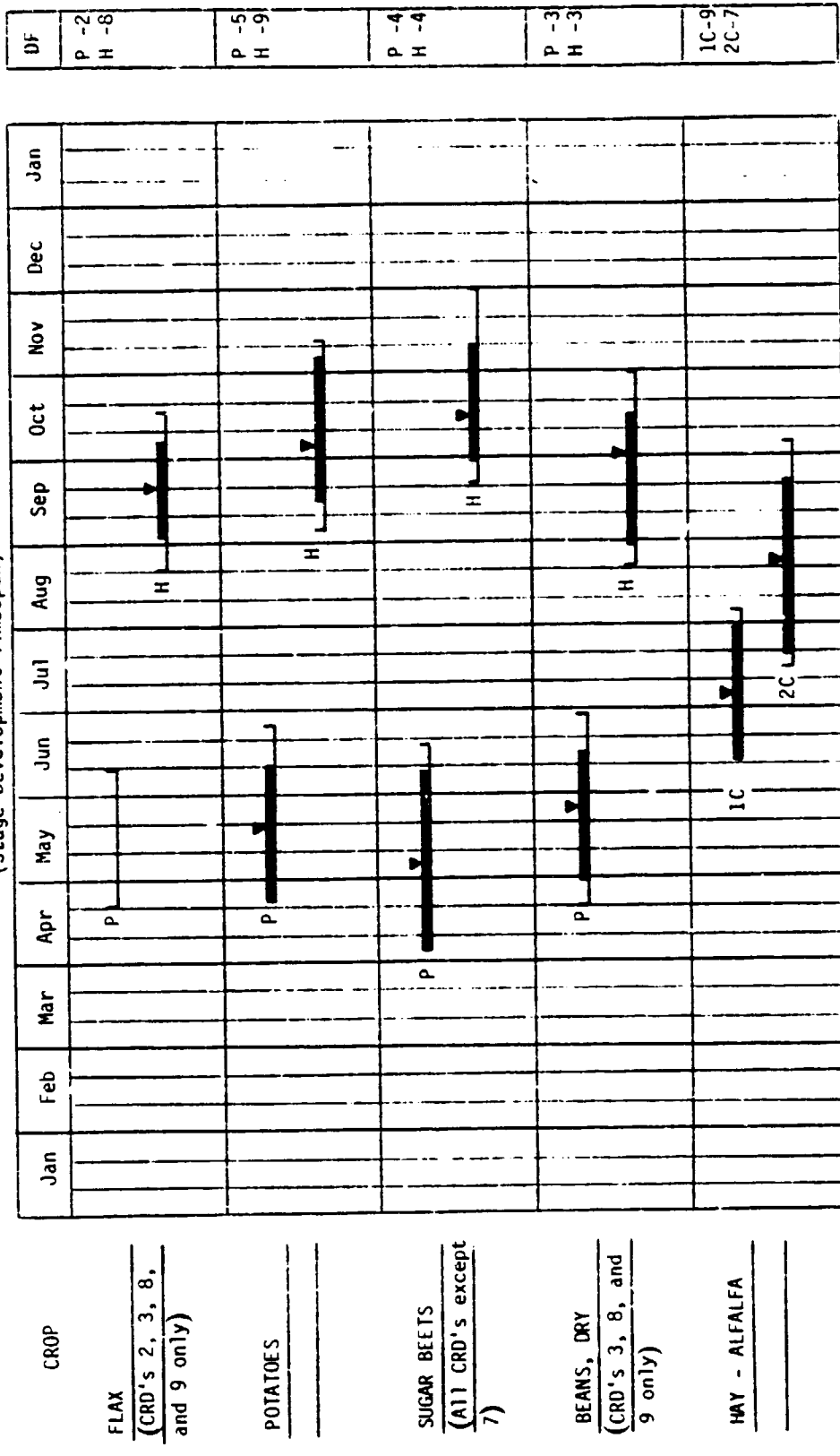


Figure 2.- Continued.



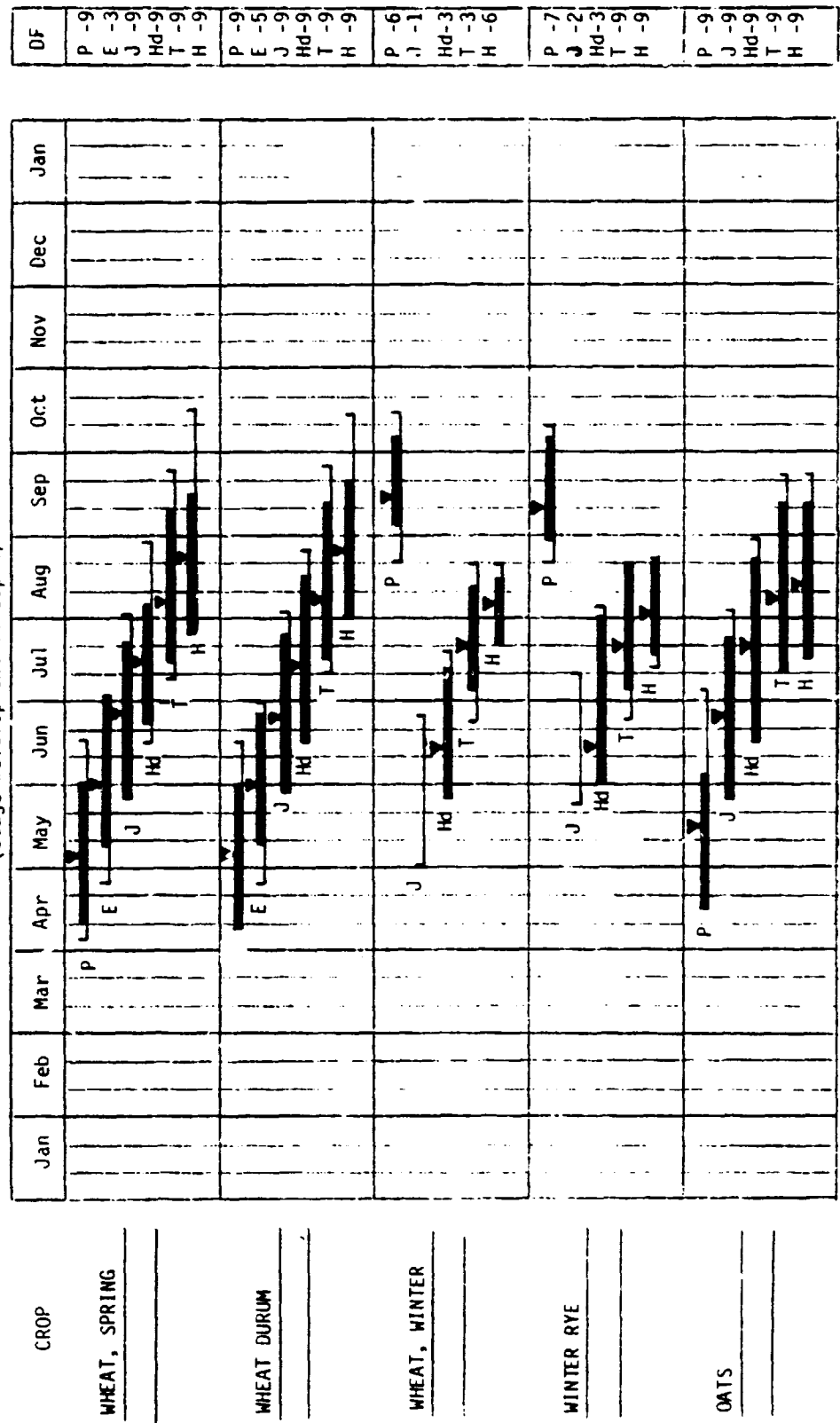


Area UNITED STATES

Pol/Sub NORTH DAKOTA

CROP CALENDAR

(Stage Development Timespan)



Sources: Field and Seed Crops Usual Planting and Harvest Dates. Agriculture Handbook No. 283, USDA/ESCS; also published and unpublished USDA/ESCS statistics and state agriculture statistics.

Figure 3.- The crop calendar for North Dakota.

Area UNITED STATES

Pol/Sub NORTH DAKOTA

CROP CALENDAR

(Stage Development Timespan)

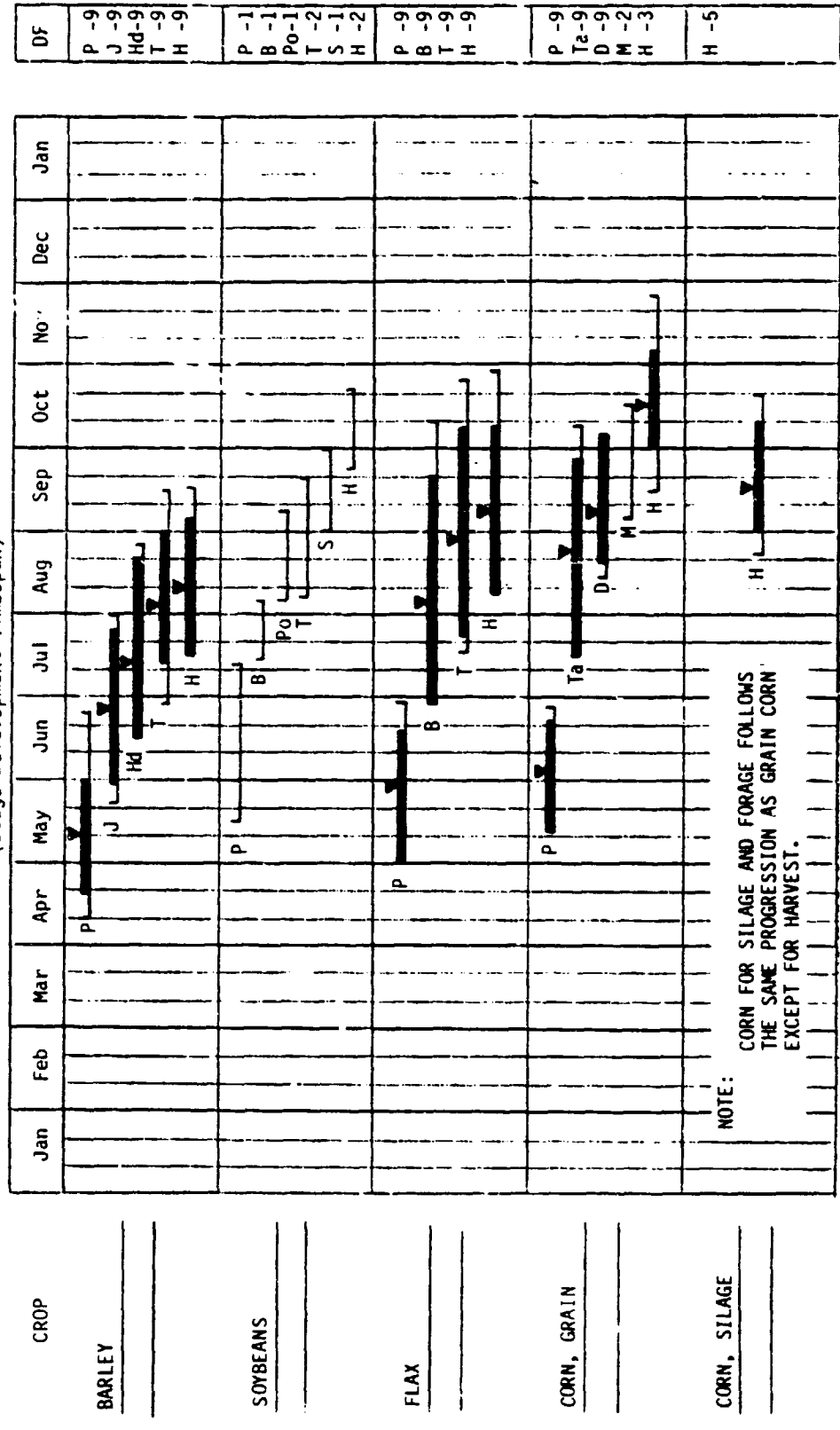


Figure 3.- Continued.

Date 4 DECEMBER 1979

Page 3 of 5

Area UNITED STATES

Pol/Sub NORTH DAKOTA

CROP CALENDAR

(Stage Development Timespan)

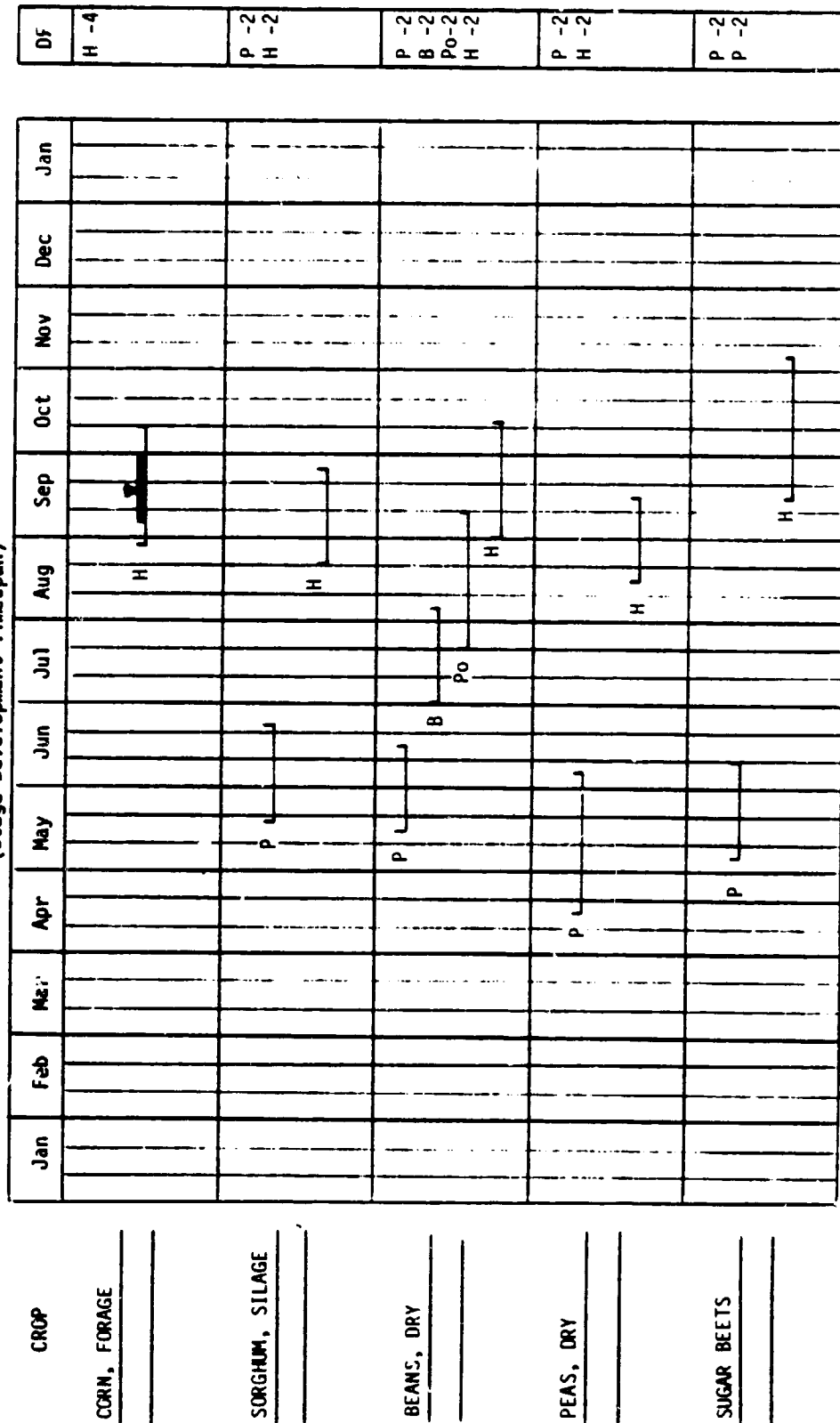


Figure 3.- Continued.

Area UNITED STATES Date 4 DECEMBER 1979

Pol/Sub NORTH DAKOTA Page 4 of 5

# CROP CALENDAR

(Stage Development Timespan)

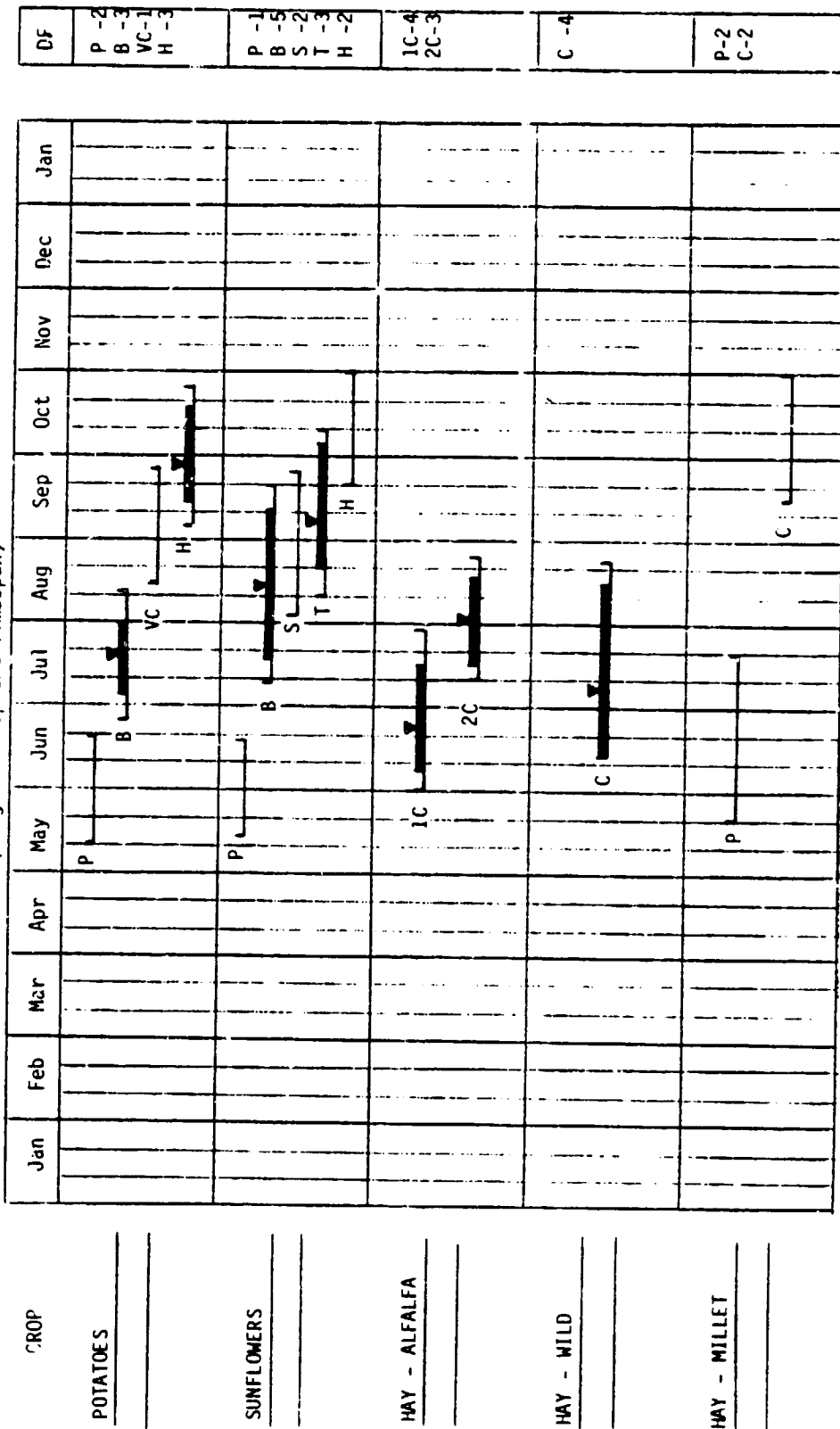


Figure 3. - Continued.

Date 4 DECEMBER 1979

Page 5 of 5

Area UNITED STATES  
POL/Sub NORTH DAKOTA

CROP CALENDAR

(Stage Development Timespan)

CROP	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	DF
SEED CROP ALFALFA									H					H -2
SEED CROP SWEET CLOVER									H					H -2
SEED CROP KENTUCKY BLUEGRASS						H								H -2
SEED CROP CRESTED WHEAT GRASS								H						H -2

Figure 3.- Concluded.

Date 4 DECEMBER 1979

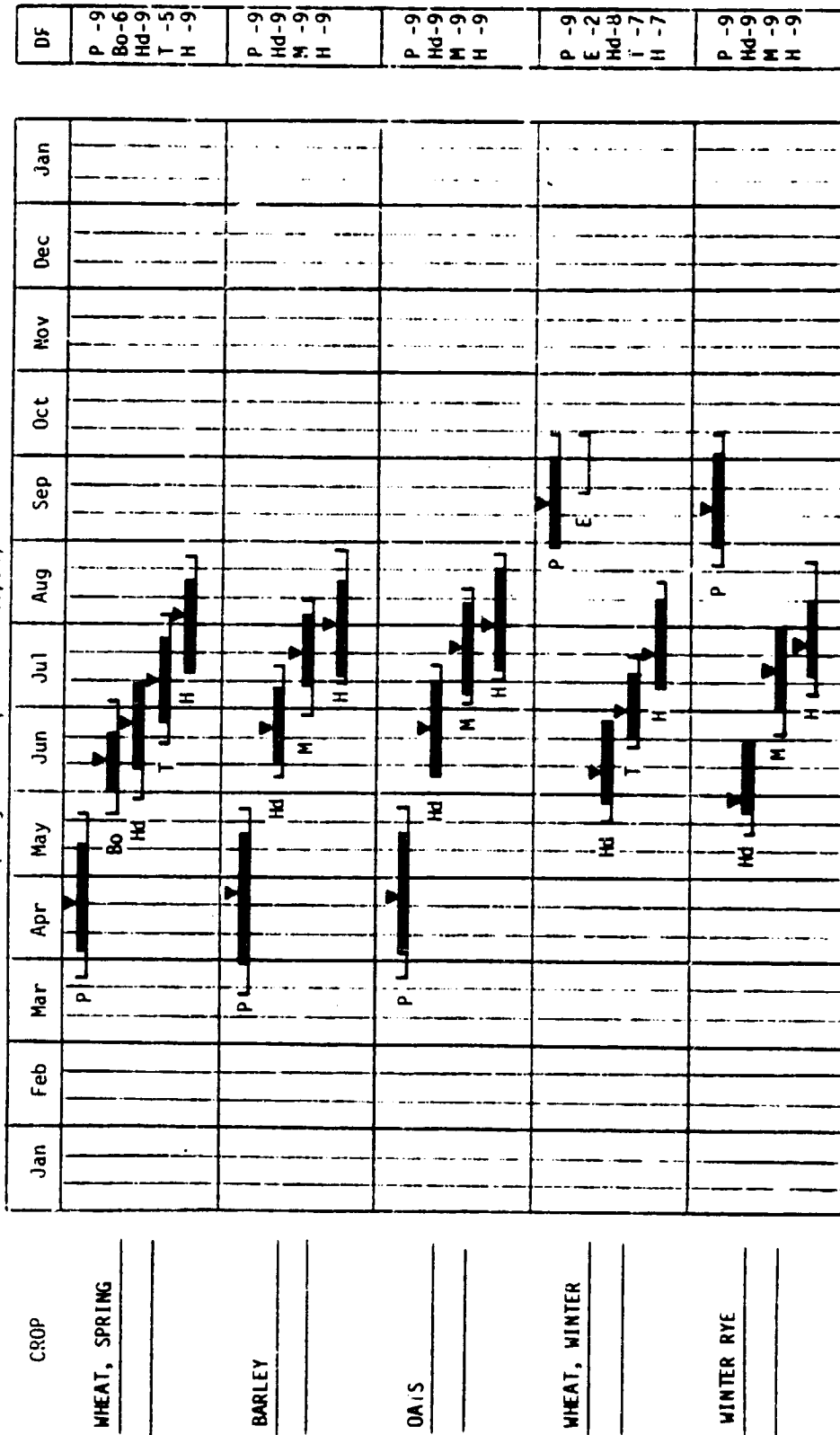
Page 1 of 3

Area UNITED STATES

Pol/Sub SOUTH DAKOTA

CROP CALENDAR

(Stage Development Timespan)



Sources: Field and Seed Crops Usual Planting and Harvest Dates. Agriculture Handbook No. 283, USDA/ESCS; also published and unpublished USDA/ESCS statistics and state agriculture statistics.

Figure 4.- The crop calendar for South Dakota.

Date 4 DECEMBER 1979

Page 2 of 3

Area UNITED STATES

Pol/Sub SOUTH DAKOTA

CROP CALENDAR

(Stage Development Timespan)

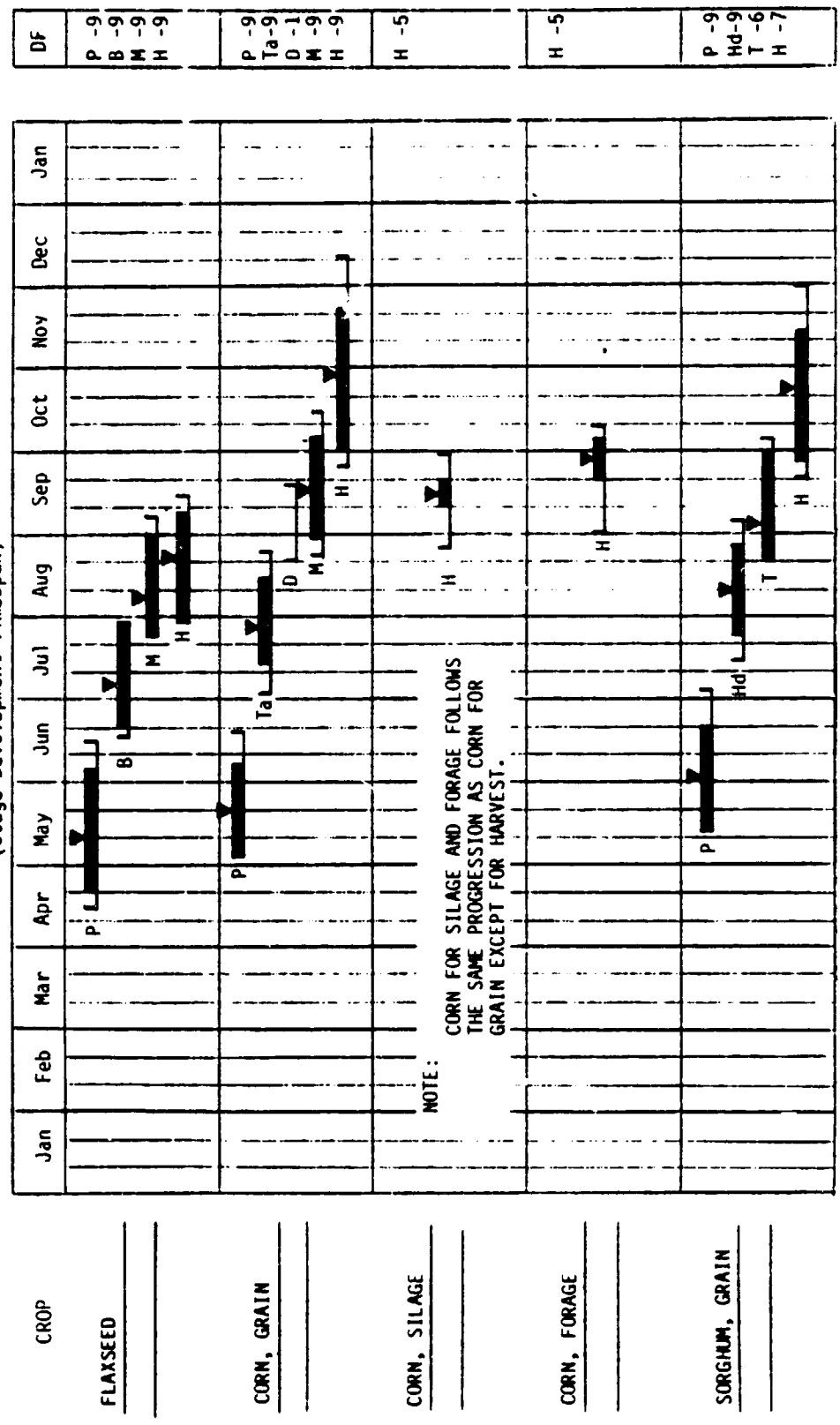


Figure 4.- Continued.

CROP CALENDAR

(Stage Development Timespan)

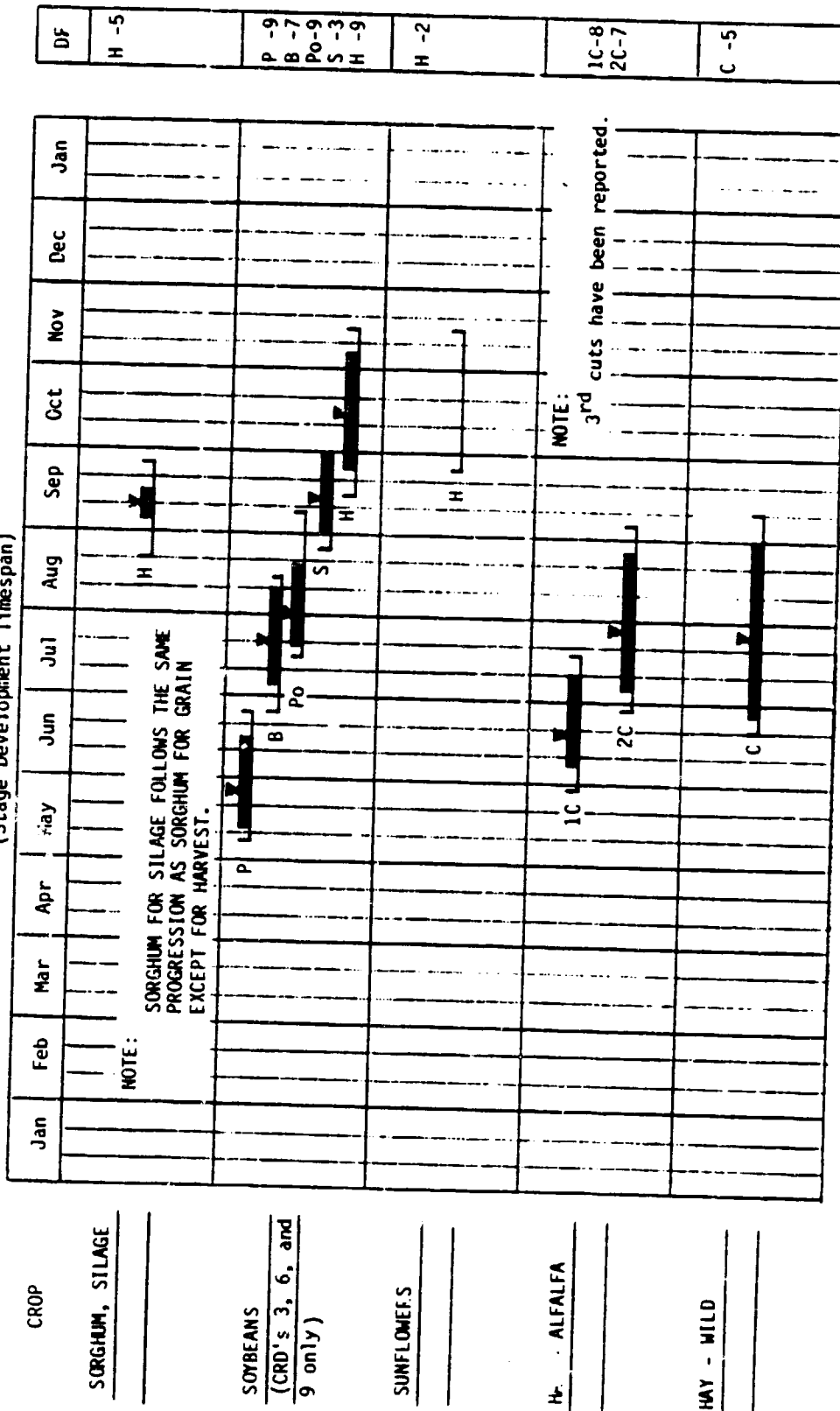


Figure 4.- Concluded.



## 2. REFERENCES

1. Field and Seed Crops Usual Planting and Harvesting Dates. Agriculture Handbook No. 283, U.S. Department of Agriculture/ESCS, 1972.
2. Minnesota Crop & Livestock Reporting Service. U.S. Department of Agriculture and Minnesota Department of Agriculture, St. Paul, Minnesota, 1978.
3. Minnesota Crop & Livestock Reporting Service. U.S. Department of Agriculture and Minnesota Department of Agriculture, St. Paul, Minnesota, 1960-61 and 1966-77.
4. Montana Crop and Livestock Reporting Service. U.S. Department of Agriculture/ESCS and Montana Department of Agriculture, Helena, Montana, 1969-78.
5. North Dakota Crop & Livestock Reporting Service. U.S. Department of Agriculture/ESCS, U.S. Department of Commerce/NOAA, and North Dakota State University Agriculture Extension Service, Fargo, North Dakota, 1973-78.
6. South Dakota Statistical Reporting Service. U.S. Department of Agriculture/ESCS, U.S. Department of Commerce/NOAA, and South Dakota State University Agriculture Extension Service, Sioux Falls, South Dakota, 1965-77.
7. Winburne, John A. (Editor): A Dictionary of Agricultural and Allied Terminology. Michigan State University Press, East Lansing, Michigan, 1962.

THIS PAGE BLANK NOT FILMED